

Work Order ID 53254

October 29, 2009 8:19:22 AM



Page 1

Item ID: D212-664-207TRN

Accept



Setup Start



Revision ID: A

Stop



Item Name: Crosstube Turning Detail

Start Date: 29/10/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 02/11/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals:

Process Plan:

RV

Date:

09-10-29

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start



Stop



| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Draw Number | Draw Rev. | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|----------------|--------------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr | Revision Nbr | | | | | | | | |
| D212-664-247 | Rev A | | | | | | | | |

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio
FA706□2-Turn first side as per Folio FA706□3- File transition lines smooth.

Q-M 09 -11 -06 B

110

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

Q-M 09 -11 -06 B

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA706□2- File transition lines smooth.□3-
Remove sand and plugs

Q-M 09 -11 -06 B

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Page 2

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Draw Number | Draw Rev. | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|----------------|--------------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|----------------|--------------|--------------|---------------|---------------|------------------|----------------|

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

QA 02-11-06

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

1 - - AWM 9-11-10

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

1 - - AWM 9-11-10

Work Order ID 53254

October 29, 2009 8:19:22 AM

Page 3

Item ID: D212-664-207TRN

Accept

Setup Start

Revision ID: A

Stop

Item Name: Crosstube Turning Detail

Start Date: 29/10/2009 Start Qty: 1.00

Cust Item ID:

Required Date: 02/11/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Draw Number | Draw Rev. | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|----------------|--------------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|----------------|--------------|--------------|---------------|---------------|------------------|----------------|

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

a-m 09 - 11 - 10 ①

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack ☒ Location: X-TUBE CELL

/ - - AWM 9-10-10

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

09/11/10 JF

MF
09-11-10

Picklist Print

October 29, 2009 8:19:29 AM

Page 1

Work Order ID: 53254



Parent Item: D212-664-207TRNRevA



Parent Item Name: Crosstube Turning Detail

Start Date: 29/10/2009

Required Date: 02/11/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Remaining Qty To Pick | Qty Issued | Date Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|--------------------------|---------------|----------------|--------|
| D6008-132RevA | | Manufactured | No | | | 110 | Each | 13.0000 | 1.0000 | | | |
| | | | | | | | | | | | | |

Crosstube extrusion

| <u>Warehouse</u> | <u>Loc Qty</u> | <u>Loc Code</u> |
|------------------|----------------|-----------------|
| <u>Location</u> | | |
| Main Warehouse | | |
| LG | 13 | |
| 50892 | 13 | |

AWM 9-11-05 (1)

| | | |
|--|---------------------|--------------|
| DART AEROSPACE LTD | Work Order: | 53254 |
| Description: Crosstube Assembly (205/212 Low Aft) | Part Number: | D212-664-247 |
| Inspection Dwg: D212-664-247 Rev: A | | Page 1 of 1 |

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

| | Inspection Sheet Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|--------|---------------------------------------|---------------|---------------------|--------|--------|-------------------------|----------|
| SIDE A | 0.438 | +/-0.010 | 0.438 | / | | | |
| | 2.680 | +0.005/-0.000 | 2.685 | / | | | |
| | 2.680 | +0.005/-0.000 | 2.685 | / | | | |
| | 2.687 | +0.005/-0.000 | 2.682 | / | | | |
| | 2.802 | +0.005/-0.000 | 2.807 | / | | | |
| | 2.906 | +0.005/-0.000 | 2.909 | / | | | |
| | 3.009 | +0.005/-0.000 | 3.014 | / | | | |
| | 3.112 | +0.005/-0.000 | 3.117 | / | | | |
| | 3.250 | +0.005/-0.000 | 3.250 | / | | | |
| | | | | | | | |
| SIDE B | 0.438 | +/-0.010 | 0.438 | / | | | |
| | 2.680 | +0.005/-0.000 | 2.685 | / | | | |
| | 2.680 | +0.005/-0.000 | 2.685 | / | | | |
| | 2.687 | +0.005/-0.000 | 2.692 | / | | | |
| | 2.802 | +0.005/-0.000 | 2.807 | / | | | |
| | 2.906 | +0.005/-0.000 | 2.909 | / | | | |
| | 3.009 | +0.005/-0.000 | 3.014 | / | | | |
| | 3.112 | +0.005/-0.000 | 3.117 | / | | | |
| | 3.250 | +0.005/-0.000 | 3.250 | / | | | |
| | | | | | | | |
| | 128.27 | +/-0.030 | 128.280 | / | | | |

| | | | |
|--------------------------|------------------------|----------------------------|-----|
| Measured by: A.M. | Audited by: AWM | Prototype Approval: | N/A |
| Date: 09-11-06 | Date: 9-11-10 | Date: | N/A |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|------------------------------|------------|----------|
| A | 08.11.07 | New Issue (P/O D212-664-207) | KJ/EC | |

PARTS LIST:

| Qty | Part Number | Description |
|-----|-------------------|---|
| X | D212-664-247 | CROSSTUBE ASSEMBLY (205/212 LOW AFT) |
| 1 | D6008-132 | CROSSTUBE |
| 2 | D2940-1 | SUPPORT |
| 4 | D3595-063-530 | RUBBER CUSHION |
| 2 | D3660-1 | CUFF |
| 4 | MS21920-28 | CLAMP (OR MS21920-30) |
| 44 | CR3212-4-06 | RIVET (OR M7885/3-4-06) |
| A/R | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE) |
| A/R | SIKAFLEX-241/-291 | SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT) |

GENERAL NOTES:

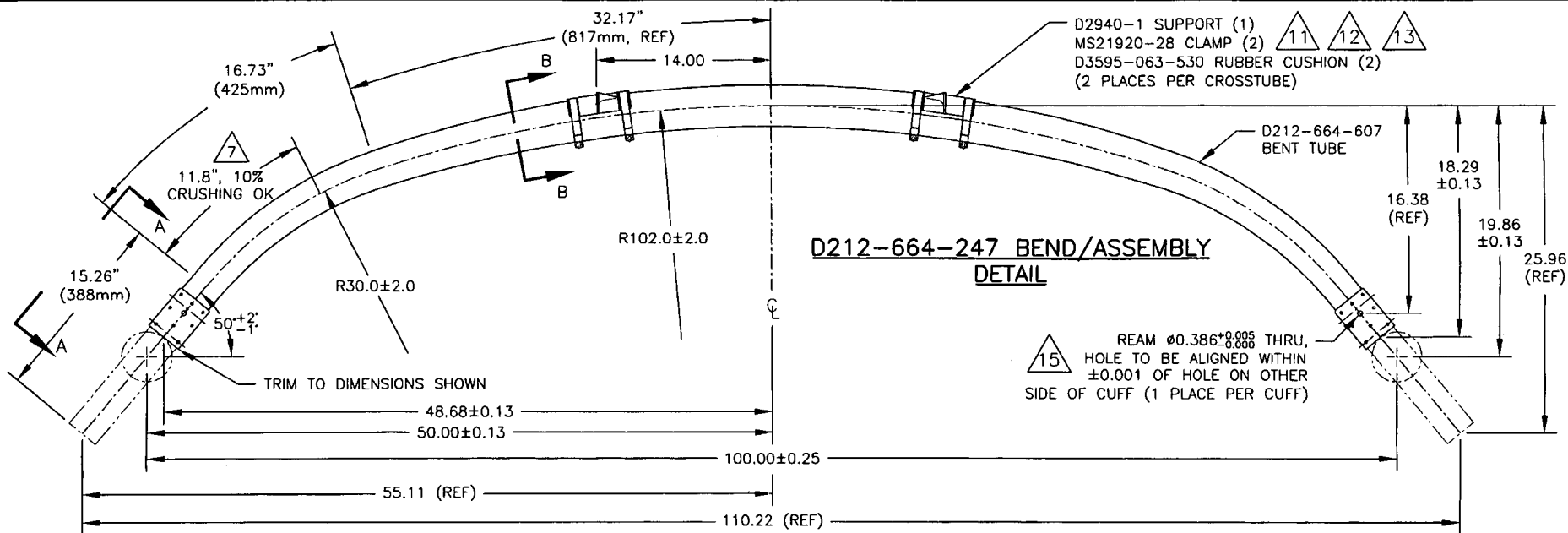
- 1) MATERIAL: MANUFACTURED FROM D6008-132
FINISHED LENGTH = 128.27±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) PART IS SYMMETRIC ABOUT CENTERLINE.
- 6) WHEN MACHINING TAPER, RUN-OFF PART AT STOCK. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- 7) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 8) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 9) SCRIBE DART PART NUMBER AND BATCH NUMBER ON INNER SURFACE OF TUBE WITH A VIBRATING STYLUS.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 14) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 15) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

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WORK ORDER
NO. 53254

09-10-29

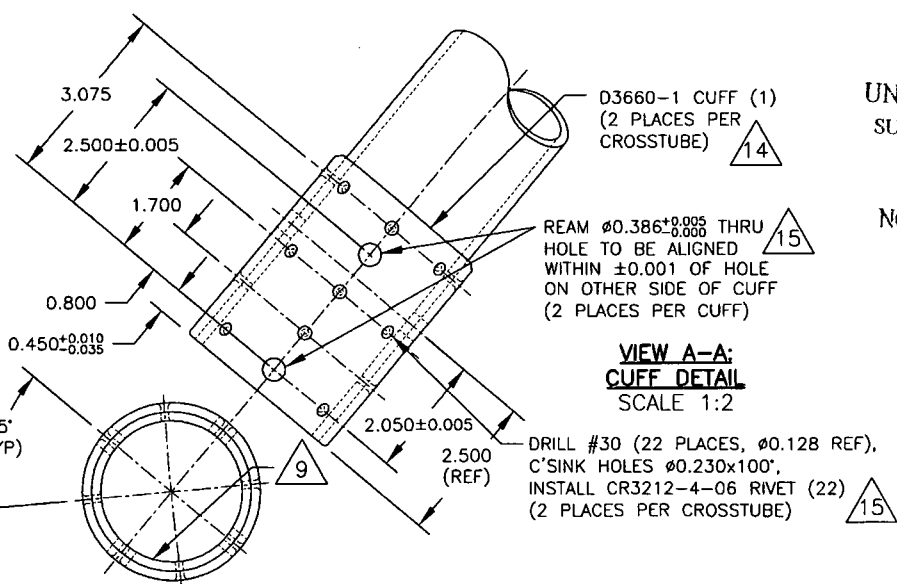
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01.02.24

| | | | |
|---|-----------|---|-----------|
| A | | 07.07.07 | NEW ISSUE |
| DESIGN | <i>qp</i> | DRAWN BY | <i>qp</i> |
| CHECKED | | APPROVED | <i>H</i> |
| DATE | | 07.07.07 | |
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| | | SCALE NTS | |

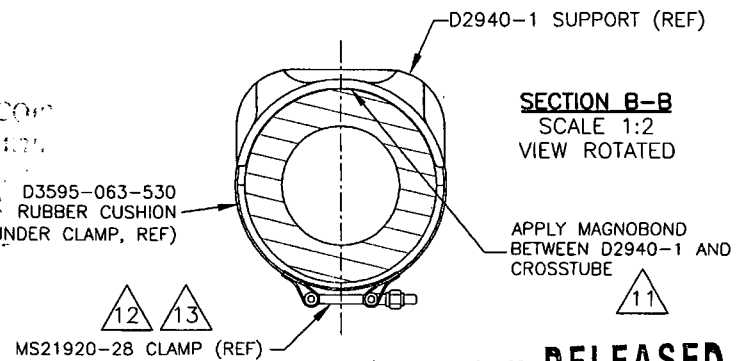


D212-664-247 BEND/ASSEMBLY **DETAIL**

REAM Ø0.386+0.005/-0.000 THRU,
HOLE TO BE ALIGNED WITHIN
±0.001 OF HOLE ON OTHER
SIDE OF CUFF (1 PLACE PER CUFF)

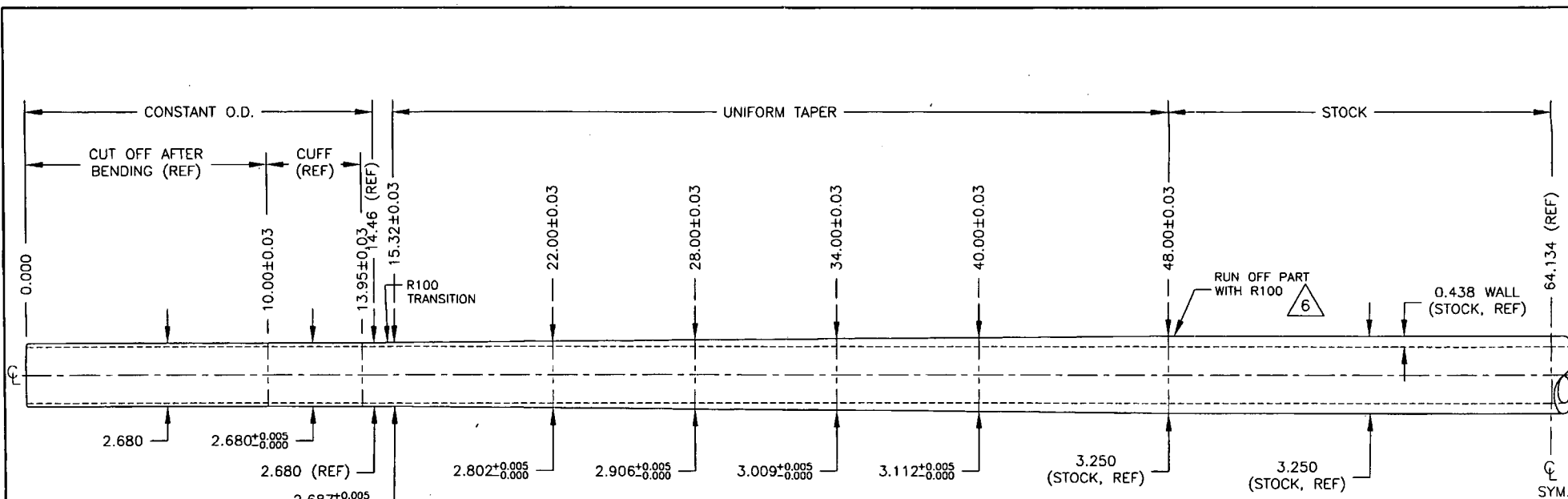


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| | | | | DATE | 07.07.07 | TITLE | | CROSSTUBE (205/212 LOW AFT) | |
| | | | | | | | | REV. A | SHEET 2 OF 3 |
| | | | | | | | | SCALE | |
| | | | | | | | | 1:8 | |



D212-664-247 MACHINING DETAIL

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| | | DATE | | DRAWING NO. | REV. A |
| | | 07.07.07 | | D212-664-247 | SHEET 3 OF 3 |
| | | | | TITLE | SCALE |
| | | | | CROSSTUBE (205/212 LOW AFT) | 1:4 |

| | | | | | | | |
|-----------------------------|----------------------|-------------------------|---|--|--------------------------------|---------------------------|--------------|
| DRAWING NO. D212-664-247 | TITLE CROSSTUBE | REV. A | DART AEROSPACE LTD ENGINEERING ORDER | | D.E.O. NO. D212-664-247-A-1 | SHEET NO. SHEET 1 OF 1 | SCALE NTS |
| DRAWN <i>UP</i> | CHECKED <i>PH</i> | MFG. APPR. <i>AM</i> | APPROVED <i>AM</i> | | DE APPR. <i>PH</i> | | |
| DATE 09.05.01 | DATE 09.06.15 | DATE 09/06/22 | DATE 09/06/22 | | DATE 09.06.22 | | |

CHANGE:

ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

| Part Number | Description |
|---------------|----------------------------------|
| D212-664-247B | CROSSTUBE ASSEMBLY (214 LOW AFT) |

THE D212-664-247B CROSSTUBE HAS THE SAME PARTS LIST AS THE D212-664-247 CROSSTUBE. HOWEVER, INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D212-664-247 CROSSTUBE.

RELEASED
09/06/22

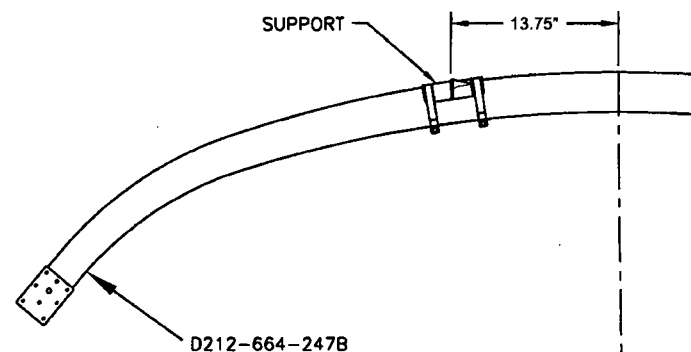


FIGURE 1 - SUPPORT INSTALLATION

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